ARMOURED BRIGADE

Simulation Centre of Excellence

Virtual Training Sector

13701 Parolannummi

CERTIFICATE

18.03.2026

Lance Corporal Márk Ticzer has carried out his conscript service in the Finnish Defence Forces fulfilling a special task within the Armoured Brigade's Virtual Training Sector as a software developer, secondary information systems administrator, assistant instructor, programming trainer, and a virtual training assistant during the period of 07.07.2025 – 18.03.2026.

Ticzer's primary assignment was to develop and program content for the FDF's VBS4 (OneArc's Virtual Battlespace 4)-simulator. His assignment included the operational use of Virtual Training Sector's different simulation systems, such as VBS4, Steel Beasts (Armoured Combat Simulator), NLAW and ITKK (NSV) VR/XR simulators, SAAB's GC IDT (Ground Combat Indoor Trainer), and Thales Group's Leopard 2A6 main battle tank training simulator for conscripts, reservists and National Defence Training Association of Finland's (MPK) students and presented to international and domestic visitors.

In addition, he maintained and serviced the servers and services of the Finnish Defence Forces' virtual training department, and successfully recovered lost data from a broken NAS (Network Attached Storage) server.

Ticzer has demonstrated excellent professional skills in both programming and information system management and maintenance. Based on his professional skills, ambition, and personality traits, we recommend Ticzer for the position of software developer or information systems administrator.

A detailed list of completed assignments can be found in appendices 1 and 2.

Parolannummi, 18th of March 2026
FDF's Chief of Virtual Simulator Systems

Lieutenant Colonel (Eng) Lasse Lahdenmaa

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APPENDIX 1

Ticzer has used OneArc's internal tools and programming languages to develop the following into the VBS4-simulator:

- Development of the F619 refueling vehicle or VBS4 and programming its logic
  - Modification and improvement of the 3D model.
  - Implementation of aircraft refueling functionality.
  - Development of vehicle usability and user-friendliness.
- Development of the LV241 battalion radio for the VBS4 environment, as well as programming and testing of the operating logic
  - Radio visibility implemented on the back of the player character.
  - The logic and implementation of radio preparation.
  - Development and addition of character animations and radio control knob animations.
  - Development of a drag-and-drop function for controlling channel and control knob rotation.
- Leopard 2A6 error correction and maintenance
  - Replacement with new PBR texture.
  - Fixed loading functionality in multiplayer mode.
- Leopard Marksman error corrections
  - Automatic lock-on to target functionality correction.
  - Corrections to weapon optics visibility.
  - Muzzle flash correction to work for both weapon barrels.
- Participation in the development of the Olympic Stadium add-on by assisting the modeler and implementing the necessary original additions for game use.
- Fixing the User Interface of the Varamiinoite tool.

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Ticzer has also been a secondary administrator of information systems, and his maintenance tasks include:

- Work implemented in the Linux/Proxmox environment
  - Corrected errors in the synchronization features of the Proxmox system and improved usability.
  - Fixed and maintained container features in the environment.
- Work carried out in a Windows environment
  - VBS4 simulation systems World Server, Simulation Client, and MinIO integration.
  - Management of Windows-based virtual machines with Hyper-V virtualization software.
  - Administration of the Finnish Defense Forces' class management program "Styx."
- Work related to network infrastructure
  - Configuring, documenting, and maintaining shared DNS, DHCP, gateway, and NAS network disk servers for conscripts.
  - Maintaining network devices with HPE Aruba switches, QNAP, and HPE Proliant servers.
- Maintaining equipment and troubleshooting
  - Responsible for maintaining and troubleshooting the organization's IT equipment.
  - Identifying and resolving hardware problems and ensuring that workstations and systems are in good working order.
  - Documenting and reporting any problems detected to the organization's management in an appropriate manner.
- System and platform administration
  - Working as a system administrator and being responsible for the organization's GitLab environment, as well as managing the communication and voice communication platform.

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APPENDIX 2

Projects developed or further developed by Ticzer to accelerate development:

- Development of VS Code language support extension (SQF/C++)
    - Designing and developing a Visual Studio Code extension.
    - Providing SQF and C++ language support.
    - Addition of numerous user-friendly features.
- Integrating VBS4 internal functions and automating source extraction
    - Utilizing SQF runtime introspection in the VBS4 environment to develop a Python tool for collecting function names and their source code into separate files.
- Local AI development
    - Implemented a secure local AI solution that can be used without transferring data to external services.
    - Integrated the AI solution into the organization's code editor to streamline development work.
    - In collaboration with the chief system administrator, introduced the Label Studio environment for collecting training data.
    - Enabled the training and further development of proprietary artificial intelligence models to meet the organization's needs.
- Documentation of VBS4 and SQF environments, tool development (VS Code extension), license management, and local AI solutions.
- Planning the further development of XR simulators In collaboration with Varjo, drawing on our own strong background knowledge.
- Reforming the workflow of the SQF and VBS4 development process, significantly streamlining and accelerating the implementation of development work.

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Other significant tasks:

- Serving as senior virtual training support person of the Virtual Training Sector
  - 68 VKY conscript leadership in 18 different military units.
  - Organizing group maintenance and schedules.
  - Working with staff and communicating information.
  - Holding weekly national meetings.
- Training the new batch of programmers
  - Creating a training plan and learning materials, and planning lessons.
  - Writing comprehensive documentation.
- Planning and implementation of recruitment for the new intake of the Armored Brigade
  - Participated in and presented at a recruitment event for over 500 conscripts.
  - Selecting and developing test questions and conducting the test.
  - Evaluation of tests and final selection of conscripts.
- Participated in and planned the collection of audio material for the production of the battlefield soundtrack. Visited the terrain with the team to record authentic military commands, which were later used in the final soundtrack.
- Development of a battlefield soundtrack used in SAAB's GC IDT (Ground Combat Indoor Trainer) to simulate realistic situations.
- Investigating and documenting the use of animation techniques in VBS4 in the VBS4 environment and animation tool, and utilizing the techniques.
- Maintenance and servicing of simulator hall equipment.

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